

Auglaize County OSU Extension Weekly Agriculture Newsletter – August 26, 2020

Scouting and Latest Information



Sudden death syndrome or brown stem rot



Dented corn

Hello!! Good morning! I pray you are well!

Every Tuesday from 8:30 to 9:30 AM we will be hosting a virtual meeting via Zoom that can also act as a simple conference call for those of you not able to get online to view live. The meeting will be set up to discuss key, timely information for your operation and to open the floor for questions and sharing of information. You may propose topics for the next meeting at anytime during the week by e-mailing or calling me. **Next week we will have Aaron Wilson and myself speak.** Please join us every Tuesday for Auglaize County Farm Talk. The last Farm Talk will be September 1st.

If you are a buyer or seller of hay or straw, let me know and I can keep a list to share with others.

List of individuals searching for hay or straw: None

List of individuals selling hay or straw:

1. About 200 3' X 3', 2019 wheat straw bales for sale.

2. At least 500 small square wheat straw bales from 2019 for sale.

Call the OSU Extension office at 419-739-6580 or my cell phone at 701-541-0043 or e-mail me at stachler.1@osu.edu to get the contact information.

Joke: What do you call a sleeping bull??

Agricultural Fun Fact: Alfalfa originated in the vicinity of what is now Turkey and Iran and is known to have been grown as a crop as early as 1300 B.C.

Rain fell only **1** day in the last week somewhere in the county. Most of the county is very dry, especially the area at an angle starting from east of New Knoxville up through Fryburg and into the Waynesfield area! Rainfall on Monday, August 24th ranged from a 0" near Mercer Line and St. Rt. 197, near Kossuth, near Bloody Bridge and near Townline-Kossuth and Glynwood roads to 0.71" near Feikert and St. Rt. 385. Rainfall for the week was the same as for Monday. Rainfall for the week averaged 0.16", 0.23" less than last week. There is at least a 51% chance of rain Wednesday, Friday, and Saturday, otherwise it will be dry.

The average high temperature now is 81 degrees F, one degree less than last week. Temperatures were above normal for **4** day in the past week and below normal for **3** days in the past week. The range in high for the week was 77 to 88 degrees F. The average high temperature for the week was 82.6 81.6 degrees F, which is 1.0 degrees F warmer than last week and 1.6 degrees F **warmer than** the current normal high temperature of 81 degrees F. Temperatures will be above normal through Saturday, then lower than normal.

Wheat



We are only about 4 weeks from seeding wheat, so hopefully you are getting ready. Choose varieties that have as much disease resistance as possible, especially to Fusarium head blight and yield the best. Look at fertility as wheat needs more phosphorus than corn and soybean and do a strip test next spring with sulfur as we have seen a yield increase for two years when sulfur was applied at 20 lb/A early in the spring.

Alfalfa



The leafhopper populations have not declined across the board, so keep scouting. I found the field above that had 50 leafhoppers per 10 sweeps and obvious hopper burn! If you plan to take four cuttings, hopefully you are done with 3rd cutting as we 4th cutting should be completed by September 15th to allow enough energy to be stored for next year's growth and winter survival. See one of the C.O.R.N. articles before about this.

Corn



Husks turning brown and corn denting



Ear of corn denting

Corn development continues to progress nicely for an early harvest! I left the corn quality the same this week as I felt little had changed in most fields although some have gotten worse. I rated the corn crop at 2% excellent, 25% good, 72% fair, 1% poor, and 0% very poor. The range in corn development is from R2 (blister) to early R5 (dent) stage. Most of the corn is at the R4 (dough) to R5 stage, with nearly 20% fully dented. Grey leaf spot is still present at very low levels as of Sunday, so it is not getting worse. I found northern corn leaf blight in about 40% of fields which is an increase from 20% last week and it increased in the two fields I saw it in the week before. You can still see the flea beetle damage in many fields, but I do not think it got worse this past week.

Soybean



Large pods aborting and pods turning yellow



Late R5 soybean (notice leaves yellowing)



Downy mildew



Brown stem rot (notice brown pith in stem)



Sudden Death Syndrome (notice blue spores!) Leaf symptoms of Sudden Death or Brown Stem Rot

The soybean crop condition has decreased this past week due to the moisture stress that was visible! The current condition of soybean in the county is 15% excellent, 66% good, 17% fair, 2% poor and 0% very poor. Last week's crop condition was 20% excellent, 66% good, 12% fair, 2% poor, and 0% very poor. The range in soybean stage is from R3 (begin podding) stage for double crop soybean to R6 (Full seed – full-sized seed in pod on one of 4 upper nodes of plant) stage to nearly R7 (one pod brown on a plant) stage in one field, but most are at R5 (beginning seed - at least one pod having a seed 1/8th inch long at one of 4 upper nodes of plant) to R6. It is still very difficult to find frogeye leaf spot in fields! The most frequent disease is still downy mildew and it seems to be getting worse. I found two new diseases on Sunday. I have photos above. I found sudden death syndrome and brown stem rot, both visible in some fields, but very infrequent at this time. Most fields have at least 5% defoliation with one up to 20% defoliation from grasshopper and Japanese beetles, but this is not enough defoliation to warrant insecticide use. I see no spider mites at this time. Start watching for stink bugs! I found two in a field!

Weeds

Please manage weeds on the outside perimeter of fields so you do not pull them into the field during harvest. Hand weed waterhemp plants from fields, especially if there are just a few plants. You will be rewarded. I'm seeing more waterhemp poke out above the soybean canopy.

Insects/Other

I have no insect counts as I'm no longer trapping for insects. Insects are still active, but very few populations warrant an insecticide application other than potato leafhopper.

With the cancellation of dicamba products applied to dicamba soybean, I did not update the label information below. Not sure of label changes for Tavium (<http://www.syngenta-us.com/herbicides/tavium-tank-mixes>) this week. With the end of Engenia, FeXapan, and XtendiMAX, I deleted the tank-mix information, but since Tavium is still legal, I kept that. There are 47 herbicides, 101 DRA's, 316 adjuvants, 96 nutritionals, 16, insecticides, 7 fungicides, 8 other products, and 41 nozzles approved for use with Tavium.

Enlist One and Enlist Duo for Enlist soybeans and corn also have approved tank-mix partners and nozzles like the dicamba products. **There were no changes to the labels this week!** The list of approved tank-mixtures for both of these products has been updated. Please follow these labels online at <https://www.enlist.com/en/herbicides.html> . There are 48 nozzles, 153 herbicides (10 new ones), 20 glyphosate formulations (1 new one), 10 glufosinate formulations (1 new one), 11 Dry AMS products, 85 insecticides, 30 fungicides, 21 plant growth regulators, 645 other products, and 315 fertilizers / nutrients labeled with Enlist One. There are 23 nozzles, 89 herbicides (15 new ones), 51 insecticides (3 new ones), 17 fungicides, 22 plant growth regulators, 8 Dry AMS products, 512 Other products, and 168 fertilizers / nutrients labeled with Enlist Duo.

Other information about the Enlist products include the following:

1. Enlist Duo rate is 4.75 pts/A which only has 1.0 lbs ae/A of glyphosate which is really not enough. You would think you could just add more glyphosate, but you CAN NOT add more glyphosate with Enlist Duo.
2. Enlist One can be mixed with ANY rate of glyphosate, glufosinate and 192 other herbicides.
3. Never use Enlist One alone on Enlist crops and always apply Enlist One at 2 pts/A
4. You CAN NOT add glufosinate with Enlist Duo!
5. When adding a postemergence grass soybean herbicide like quizalofop, clethodim, sethoxydim, or fluazifop to Enlist One add 33% higher rate of these products to reduce the antagonism with grasses OR apply the postemergence grass herbicides 7 days after the Enlist One.

Upcoming Meetings

- 1. Auglaize County Farm Talk.** On Tuesdays from 8:30 to 9:30 AM we will have a virtual meeting. The link to get onto the meeting is as follows:
<https://osu.zoom.us/j/264219671?pwd=K0VDSTZFOVldGJWeUZaeVA3QUVrQT09> A password may be needed. If so it is Farmtalk (first letter in caps, then lower case for rest with no spaces). If you just want to call in the phone number and meeting code are as follows: 646-876-9923 264219671# with password of 07099073. The last Farm Talk will be September 1st.
- 2. All OSU Extension face to face meetings have been cancelled or postponed, although we are allowed to apply for exemptions now to host meetings.**
- 3. The Farm Science Review has been cancelled for 2020 due to COVID-19, however it will proceed virtually, but the process has not been determined yet!**

Answer to joke: A bull-dozer!!

Why are my Soybean Leaves Turning Yellow and Brown, but Veins are Still Green?

As I drive around the county I am starting to see individual soybean plants and some times patches of soybean turn yellow and brown. This is not good as it is sudden death syndrome (SDS). There is much less sudden death than in 2018 at this time. Sudden Death Syndrome may cause yield loss this year with it coming in this early.

Identifying symptomology of SDS includes leaves turning yellow between the veins followed by brown lesions. The upper leaves of the plant are affected first. The veins in the leaf remain a dark green. The yellow and brown can be found together between the veins in a mottled pattern in the early stages of development followed by mostly brown. Next the leaves shrivel up and fall off the plant. In most cases the petiole, the structure that attaches the leaf to the stem, stays on the plant. If you cut the stem in half, the pith,

the center spongy portion will be white compared to the brown color seen for brown stem rot. Brown stem rot causes the same leaf symptoms as SDS, so cutting the stem is critical. It is possible to have both diseases in the same plant. If you dig up a plant when the soil is moist to wet it is possible to find blue spore masses on the root which is unique to SDS and not seen for brown stem rot. I saw these blue spores while scouting Sunday. You will not always find the blue spore masses even when the soil is moist to wet.

Sudden death syndrome is caused by the soil fungus *Fusarium solani* f. sp. *glycines*. Another scientific name you may find is *Fusarium virguliforme*. The fungus over winters on plant residue and as chlamydospores in the soil. The chlamydospores are very resistant to the soil environment and are as easy to survive as the oospores of *Phytophthora*. The fungus can also survive on the cysts of soybean cyst nematode. As soil temperatures rise in the spring, chlamydospores near the soybean roots are stimulated to germinate, then infect the soybean root.

Roots may be invaded by the pathogen as early as one week after crop emergence and some say as late as right before or up to flowering. The fungus grows very slowly in the plant and no symptoms can be seen shortly after infection. The earliest symptoms show up is in mid-July at the R3 stage which is when pods are $\frac{3}{4}$ inch in length and as late as just prior to maturation. The leaf symptoms can appear during periods of heavy rain in July and August. The leaf symptoms are caused when the fungus produces a toxin in the plant. The fungus does not invade the stem beyond the first few inches above the soil line. The pathogen does not invade seeds, pods, flowers, and leaves.

Sudden death syndrome is most severe when soybean is planted early into cool and wet soils and when heavy midsummer rains saturate the soils. There is also a correlation to soybean cyst nematode. The more soybean cyst nematode you have the more sudden death is likely to be present due to the soybean cyst nematode providing an entry point for the fungus.

There are no management practices that will prevent the disease from occurring, however there are some practices available to reduce the risk of SDS. There are no foliar fungicides to control the disease since it occurs in the root. One management strategy is to delay planting until the soils have thoroughly warmed and there is little risk for saturated soil conditions after plant emergence. The greater the water infiltration the more limited the infection should be. Improved water infiltration can be accomplished by improving drainage and reducing compaction. Crop rotation is another management practice, although its effectiveness is limited. Research shows that multiple years of corn in a rotation will not reduce the fungal pathogen. Planting a resistant variety is another management option. However, there are no highly resistant soybean varieties available. Plant breeders are still working on improving varieties. Find all sources of information regarding the level of resistance of a variety and ask how much research has gone into the rating. Reduce the amount of soybean cyst nematode and you can reduce the amount of infection of the pathogen. One last management strategy is to apply the ILeVO seed treatment. However, there has been mixed results as to its effectiveness.

Keep good records as to whether a field has SDS and how frequent it is in the field in order to plan your management practices for the future.

C.O.R.N. Newsletter

<https://agcrops.osu.edu/newsletter/corn-newsletter>

Making Corn Silage in Dry Conditions



Chopping Corn for Silage

The primary goal of making corn silage is to preserve as many nutrients in the corn plant as possible, to produce a feed that is acceptable to cows, and to minimize any risks associated with feeding the silage. The following are important considerations for making corn silage when growing conditions have been dry.

Chop at the correct dry matter concentration (*Editor's note: see accompanying article "Corn Silage Harvest Timing"*). Drought-stressed corn plants are often much wetter than they appear, even if the lower plant leaves are brown and dried up. Before starting chopping, sample some plants (cut at the same height as they will be with the harvester) and either analyze DM using a Koster tester or microwave or send to a commercial lab (turn-around time may be a few days if you send it to a lab). If the plants are too wet, delay chopping until the desired plant DM is reached. The plant may continue to accumulate DM (increase yield), and you will not suffer increased fermentation losses caused by ensiling corn that is too wet.

Use a proven inoculant. When silage is worth upwards of \$80/ton (35% DM) reducing shrink by 2 percentage units has a value of about \$2/ton. Homolactic inoculants (these are the ‘standard silage inoculants’) produce lactic acid which reduces fermentation losses but sometimes can increase spoilage during feedout. The buchneri inoculants increase acetic acid which slightly increases fermentation losses but greatly reduce spoilage during feedout. Severely drought-stressed corn can have a high concentration of sugars because the plant is not depositing starch into the kernels. High sugar concentrations can increase spoilage at feed out because it is food source for yeasts and molds. Use of a good (from a reputable company with research showing efficacy) buchneri inoculant may be especially cost-effective with drought-stressed corn.

Check for nitrates. Drought-stressed corn plants can accumulate nitrates which are toxic (as in fatal) to ruminants. Silage from drought-stressed fields should be tested before it is fed. Ideally, corn plants should be sampled and assayed for nitrates prior to chopping (most labs offer very rapid turn-around times for a nitrate assay). If values are high, raising the cutting height will reduce nitrate concentrations in the silage because the bottom of the stalk usually has the highest nitrate concentrations. Because forage likely will be very limited this coming year, do not raise the cutting height unless necessary to reduce nitrate concentrations. Nitrate concentrations are often reduced during silage fermentation so that high nitrates in fresh corn plants may end up as acceptable concentrations in the fermented corn silage. Silage with more than 1.5% nitrate (0.35% nitrate-N) has a high risk of causing nitrate toxicity in cattle. See the following University of Wisconsin-Extension fact sheet for more details on nitrate toxicity: <https://fyi.extension.wisc.edu/forage/nitrate-poisoning-in-cattle-sheep-and-goats/>

Chop at correct particle length. Do not chop too finely so that the effective fiber concentration of corn silage is reduced. If the corn plants have limited ear development, fine chopping is not needed for good starch digestibility. Generally, a theoretical length of cut (TLC) of about ½ inch is acceptable (longer with kernel processing and BMR silage) but this varies greatly between choppers and crop moisture concentration. If using a Penn State particle size sieve, aim for 5 to 10% on the top screen.

Use a kernel processor. Kernel processed corn silage tends to pack more densely than unprocessed corn silage which may help increase aerobic stability. Kernel processing will also increase starch digestibility by breaking the kernel. Poor starch digestibility is a major problem with dry, mature corn silage.

Reduce Shrink. Fill quickly, pack adequately, cover, and seal the silo as soon as you are done filling. Practicing good silage-making techniques can reduce shrink by more than 5 percentage units, which can be worth more than \$4/ton of corn silage (35% DM).

Author(s):
Bill Weiss

Corn Silage Harvest Timing

Silage harvest has begun in some parts of Ohio. Proper harvest timing is critical because it ensures the proper dry matter (DM) concentration required for high quality preservation, which in turn results in good animal performance and lower feed costs. The proper DM concentration is the same whether it is a beautiful, record breaking corn crop or a severely drought stressed field with short plants containing no ears.

The recommended ranges for silage DM are:

Bunker: 30 to 35%

Upright: 32 to 38%

Sealed upright 35 to 40%

Bag: 32 to 40%

Chopping corn silage at the wrong DM concentration will increase fermentation losses and reduce the nutrient value of the silage. Harvesting corn too wet (low DM concentration) results in souring, seepage, and storage losses of the silage with reduced animal intake. Harvesting too dry (high DM concentration) promotes mold because the silage cannot be adequately packed to exclude oxygen. Harvesting too dry also results in lower energy concentrations and reduced protein digestibility.

Corn silage that is too dry is almost always worse than corn silage that is slightly too wet. So if you are uncertain about the DM content, it is usually better to err on chopping a little early rather than a little late. Follow the guidelines below to be more confident in your moisture assessment.

Kernel stage not a reliable guide for timing silage harvest

Dry matter content of whole plant corn varies with maturity. Research has shown that the position of the kernel milk-line is NOT a reliable indicator alone for determining harvest timing. Geographic location, planting date, hybrid selection, and weather conditions affect the relationship between kernel milk-line position and whole plant DM content. In a Wisconsin study, 82% of the hybrids tested exhibited a poor relationship between kernel milk-line stage and whole-plant % DM. In Ohio we have seen considerable variation in plant DM content within a given kernel milk-line stage.

Appearance of the kernels should only be used as a guide of when to begin sampling for DM content, see section below *When to Begin Field Sampling*.

Determining silage moisture

The only reliable method of determining the optimal time to harvest corn silage is to sample and directly measure the % DM of whole plants. This information combined with average whole plant dry-down rates can be used to roughly predict the proper time to chop corn silage.

How to sample fields

Collect about 5 representative plants from the entire field, from areas with representative plant population and not from edge rows. Collect separate samples from areas that may have different dry down rates, such as swales, knolls. The moisture concentrations of plants can vary within a field (plants will be wetter in low lying area and drier on knolls) and this should be considered when collecting your sample plants.

As soon as the plants are collected, chop them uniformly (using a cleaver, machete, chipper shredder, or silage chopper) and mix thoroughly to obtain a sample with representative grain to stover ratios for DM determination. Put representative sample in a plastic bag and keep it cool (refrigerate if possible) until determining the DM concentration. Some farmers prefer sampling only 2 or 3 plants without any additional sub-sampling to reduce the chances of a non-representative grain to stover ratio that can affect the results. In this case, choosing representative plants is even more critical.

Determine the DM by drying the plant material using a Koster oven tester, microwave, convection oven, a vortex dryer (<https://extension.psu.edu/a-vortex-forage-and-biomass-sample-dryer>), or taking to a lab. From our work, on-farm measurement of DM is probably only accurate to +/- 2 units. So if you measure a DM of 30% it could easily be 28-32%. Keep this in mind as you plan harvest timing.

When to begin field sampling

We know that kernel milk stage is NOT reliable for determining the actual harvest date, but its appearance is a useful indicator of when to begin sampling fields to measure plant DM content.

Corn in Ohio should be first sampled to measure DM at full dent stage (100% milk, no kernel milk-line) for conventional tower or bunker silos. Full dent stage happens about 40 days after silk in Ohio. For sealed (oxygen-limited) tower silos begin sampling when the milk-line is one-fourth down the kernel (75% milk remaining). It is important to begin sampling early as a precaution against variation in dry down.



The milk-line of on these ears is about one-fourth to one-third down the kernel. This stage might be about right for oxygen limited silos but could be too late for conventional tower or bunker silos.

Predicting the harvest date

Once whole-plant % DM is determined, use an average dry down rate of 0.5% unit per day to estimate days until the optimal harvest moisture is reached. For example, if a given field measures 30% DM at the first sampling date, and the target DM is

35% for harvest, then the field must gain an additional 5% units of DM, thus requiring an estimated 10 days (5% units divided by 0.5 unit change per day).

This procedure provides only a **rough estimate** for the harvest date. Many factors affect dry down rate, such as hybrid, planting date, general health of the crop, landscape position, soil type, and weather conditions. Early planted fields and hot and dry conditions can accelerate dry down rates to 0.8 to 1.0 % unit per day. Fields should be monitored closely and more frequently under those conditions. As mentioned above, corn silage that is slightly too dry is usually worse than corn silage that is slightly too wet. Harvesting a little early is usually better than waiting too long.

Author(s):

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Potential for Nitrate Problems in Drought Stressed Corn

Have very dry soil conditions increase the potential for toxic levels of nitrates in corn harvested for silage? Nitrates absorbed from the soil by plant roots are normally incorporated into plant tissue as amino acids, proteins, and other nitrogenous compounds. Thus, the concentration of nitrate in the plant is usually low. The primary site for converting nitrates to these products is in the growing leaves. Under unfavorable growing conditions, especially drought, this conversion process is slowed, causing nitrate to accumulate in the stalks, stems, and other conductive tissue. The highest concentration of nitrates is in the lower part of the stalk or stem. For example, the bulk of the nitrate in a drought-stricken corn plant can be found in the bottom third of the stalk. If moisture conditions improve, the conversion process accelerates and within a few days, nitrate levels in the plant return to normal.

The highest levels of nitrate accumulate when drought occurs after a period of heavy nitrate uptake by the corn plant. Heavy nitrate uptake begins at the V6 growth stage and continues through the silking stage. Therefore, a drought during or immediately after pollination is often associated with the highest accumulation of nitrates. Extended drought prior to pollination is not necessarily a prelude to high accumulations of nitrate. The resumption of normal plant growth from heavy rainfall will reduce nitrate accumulation in corn plants, and harvest should be delayed for at least 1 to 2 weeks after the rainfall. Not all drought conditions cause high nitrate levels in plant. If the soil nitrate supply is low in the dry soil surface, plant roots will not absorb nitrates. Some soil moisture is necessary for absorption and accumulation of the nitrates.

If growers want to salvage part of their drought damaged corn crop as silage, it's best to delay harvest to maximize grain filling, if ears have formed. Even though leaves may be dying, the stalk and ear often have enough extra water for good keep. Kernels will continue to fill and the increases in dry matter will more than compensate for leaf loss unless plants are actually dying or dead. Moreover, if nitrate levels are high or questionable, they will decrease as the plant gets older and nitrates are converted to proteins in the ear.

Author(s):

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Preharvest Herbicide Treatments



Velvetleaf in a Soybean Field

Information on preharvest herbicide treatments for field corn and soybeans can be found in the “Weed Control Guide for Ohio, Indiana, and Illinois”, at the end of these crop sections (pages 72 and 143 of the 2020 edition). Products listed for corn include Aim, glyphosate, and paraquat, and for soybeans include Aim, paraquat, glyphosate, and Sharpen. Some dicamba products are also approved for preharvest use in soybeans, and some 2,4-D products are approved for use in corn, and these are not listed in the guide. The basic information for these follows:

Dicamba - soybeans: Apply 8 - 32 oz/A (4 lb/gal products) as a broadcast or spot treatment after soybean pods have reached mature brown color and at least 75% leaf drop has occurred; soybeans may be harvested 14 days or more after a pre-harvest application; do not use preharvest-treated soybean for seed unless a

germination test is performed on the seed with an acceptable result of 95% germination or better; do not feed soybean fodder or hay following a preharvest application of this product.

2,4-D - corn: Labels vary with regard to types of corn that can be treated (some indicate no sweet corn) and based on whether crop is being grown for seed. Apply after the hard dough (or dent) stage when silks have turned brown. Weed seed production can be suppressed if applied prior to the flowering stage. Allow 14 days between application and grain harvest. Do not forage or feed corn fodder for 7 days after application.

Preharvest herbicide treatments are primarily intended to suppress/kill and dessicate weeds that can make harvest more difficult. Products with contact activity will cause faster dessication and leaf drop of weeds, but may be less effective at killing weeds compared with systemic products. Effective dessication with contact herbicides may still require a wait of a week or more following application, and this can vary by weed. The maximum paraquat rate is well below the rate required to actually kill large weeds, but it is still probably most effective for dessication of morninglory. Glyphosate is not likely to be effective on marehail and waterhemp, and many giant ragweed populations, whereas dicamba or 2,4-D may with enough time between application and harvest. The first frost will usually provide results similar to herbicides, so in a situation where crop maturity is delayed or the infested field can be harvested later in fall, consider whether a herbicide treatment is actually needed. Preharvest treatments can also be effective for control of warm season perennials, and the systemic herbicides will be most effective where this is the goal. Keep in mind also that for weeds with fruits that can contaminate harvest, such as black nightshade, the preharvest treatment can dessicate the foliage but will not affect the fruits, except that dessication of weeds may result in fruits closer to the soil.

Preharvest treatments are not intended to be used to speed up crop maturity, and largely do not accomplish this. The restrictions on preharvest treatments that specify how mature the crop must be at time of application are designed to minimize any effect of herbicides on crop maturation. Applying earlier than specified could interfere with that process. The residue tolerances for this use are also based on a certain application timing, and failure to follow label guidelines could result in illegal herbicide residues in grain. For crops being grown for seed, and for sweet corn and popcorn, be sure to check with the seed company/processor for approval prior to using any preharvest treatments.

Author(s):
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Late Season Forage Harvest Management



Harvesting Alfalfa

The best time to take a last harvest of alfalfa and other legumes is sometime in early September in Ohio, for the least risk to the long-term health of the stand. These forages need a fall period of rest to replenish carbohydrate and protein reserves in the taproots that are used for winter survival and regrowth next spring.

Many forage producers around the state have been cutting this past week and are continuing into this week. It will be ideal if this is indeed the last harvest of the season. But some growers might try to squeeze out another late cutting, and others have fields that are not quite ready for harvest right now. Like most farming decisions, there are trade-offs and risk factors to consider when making a fall harvest of forage legumes after the first week of September. This article reviews best management practices and risk factors affecting fall cutting management.

The decision of when to take the last harvest with the least risk to the stand can be boiled down to two choices: 1) cut early enough in the fall (generally early September) to permit alfalfa to regrow and replenish carbohydrate root reserves, or 2) cut late enough so that alfalfa does not regrow and use up root reserves prior to winter dormancy. Cutting in between those times (mid-September to mid-October) means more risk to the stand. Factors such as previous cutting management, age of stand, soil fertility, variety, and soil moisture affect the level of that risk.

For those who are risk adverse, following the last cutting date recommendations offers the highest probability of promoting good winter survival and vigorous growth next spring. The recommendation in the 15th edition of the Ohio Agronomy Guide is to complete the last regular harvest of alfalfa by September 7 in northern Ohio, September 12 in central Ohio and by September 15 in southern Ohio. The corollary is to delay final harvest until a killing frost (25F for several hours) has occurred.

Another approach to fall harvest management uses growing degree-days (GDD) rather than calendar dates. Research conducted in Canada showed that alfalfa needs 500 GDD (based on degrees Celsius and base 5 C for alfalfa growth) between the last cutting and a killing frost to generate sufficient regrowth to

provide good winter survival and yield potential the following year. Dan Undersander, University of Wisconsin Extension retired forage specialist, wrote in a 2012 article "...we do not need to wait for a killing frost to take the last cutting. We must only wait until it is so cool that little or no regrowth will occur. Thus, harvesting in late fall, when less than 200 GDD will accumulate, minimizes winter injury."

The period between an accumulation of 200 to less than 500 GDD is a no-cut period (GDD calculated from degrees Celsius scale with base 5C). This GDD approach provides more exact timing for the date of last harvest, but it involves more risk because the grower must predict or consider the probability of either accumulating enough GDD for energy replenishment or GDD not accumulating to enough to trigger regrowth that uses up energy reserves. Historic weather data, like that available from the OSU weather stations (<http://www.oardc.ohio-state.edu/weather1/>), is useful to calculate those probabilities.

Based on this GDD approach, we studied 5 years (2013-2017) of weather data at Wooster, OH. The date of a killing frost (25 F for several hours) ranged from November 3 to 22. The no cut zone of 500 to 200 GDD prior to the killing frost was September 17 to October 13 for three of the five years, but September 4 to 30 in 2014 and September 10 to October 4 in 2013.

So, the period of most risk for cutting alfalfa based on this GDD criterion agrees well with past recommendations to not cut alfalfa from early September to mid-October. Therefore, cutting in late October prior to a true killing frost of forage legumes, is likely to result in little to no regrowth and no significant depletion of root reserves. However, there is still the risk of frost heaving with the late removal of forage cover (discussed more below).

Previous harvest management should be a part of the risk assessment for fall cutting. The cutting frequency during the growing season affects the energy status of the plant going into the fall. Frequent cutting (30-day intervals or less) results in the plant never reaching full energy reserve status during the growing season. A short regrowth period just prior to the fall harvest can be especially risky, if that fall harvest occurs between mid-September and early October, because the regrowth uses root reserves and there won't be enough growing weather remaining for the plants to restore a high level of root reserves before cold weather shuts down the plants. This lower root reserve status may limit winter survival and spring regrowth, depending on the winter and early spring growing conditions.

Variety selection may also affect the fall cutting risk assessment. Today's top varieties have genetics selected to better withstand intensive cutting schedules. Alfalfa varieties with high disease resistance and good levels of winter hardiness will be more tolerant of a fall cutting. Adequate fertility, especially soil potassium, and a soil pH near 6.8 will improve plant health and increase tolerance to fall cutting. Stands under 3 years of age are generally more tolerant of fall cuttings than older stands where root and crown diseases are setting in. However, you have more productive stand life to lose if younger stands are harmed by fall cutting.

Soil drainage and soil moisture affect the risk of fall cutting. High soil moisture slows down the cold hardening process, increasing the risk of winter injury. Alfalfa on well-drained soils tolerates late fall cuttings better than on moderately or poorly drained soils. **But a word of CAUTION** - Removing the top growth of alfalfa plants going into the winter on heavy soils and poorly drained soils increases the risk of spring frost heaving. Heaving is a significant risk on many Ohio soils with higher clay content. This would be a concern when cutting very late after the 200 GDD threshold date.

Finally, consider the economics of a fall harvest. Often the height of the alfalfa is deceptive as an indicator of tonnage. The resulting windrow after cutting is often sparse. Thus, the cost of mechanical harvesting is high on a per ton basis.

Fall cutting risk can be reduced but not eliminated. Nature bats last and alfalfa stand health and survival will suffer more from fall cutting when have early freezes, open and very cold winters, early springs with ice, and/or extreme rainfall and temperature variations. If at all possible, we urge producers to observe the fall rest period for forage legumes. And if you do harvest during the fall rest period, leave some strips of uncut forage to compare to. You might learn something useful!

Author(s):

Mark Sulc

What is Required Before You Sell Your Field Harvested Seed in Ohio



Red Clover

This is the time of year we often hear of Ohio producers considering seed harvests of red clover or other crops (e.g. cover crop seed). If the intention is to sell that seed, even if just “across the fence” to a neighbor, it is important to be reminded there is a permitting process that must be followed before any seed can be sold in order to stay legal with state and federal laws related to seed sales and consumer protection.

Before selling any seed, the seed producer must acquire a permit from the Ohio Department of Agriculture. This permit involves an application and testing a sample of the seed for seed purity and germination. The results of the seed test must be disclosed on a label (seed tag) when the seed is sold.

If the Ohio Department of Agriculture finds any restricted weed seeds in the seed sample, this also must be disclosed on the label, and there are limits to how much restricted weed seed can be present in a seed lot for sale. If there are any prohibited seeds found in the sample, the seed permit will be denied and cannot be sold in that condition. The seed would have to be cleaned and then re-tested to prove absence of prohibited seeds before a permit would be issued.

Before considering any seed sales, contact David Simmons at the Ohio Department of Agriculture:

David Simmons
Agri Inspection Administrator
Ohio Department of Agriculture
614-728-6407
simmons@agri.ohio.gov

David will be happy to explain the full details of the seed registration and permitting process. In fact, producers are welcome to submit seed for testing and obtain the results before deciding if they want to move forward with the permitting application. Each producer can obtain free seed testing from Ohio Dept. of Agriculture between June 1 and December 31 (first three tests are free, additional ones charged at cost). Between January 1 and May 31 of each year all seed testing is charged at cost.

Seed can also be tested by Central Ohio Seed Testing, including cover crop seed (614-792-0334).

Keep in mind there are other federal seed laws to consider, such as the Plant Variety Protection Act which provides legal intellectual property rights protection to breeders of new varieties of plants which are sexually reproduced (by seed) or tuber-propagated. So producers need to be aware of what variety they are reproducing and whether it is protected under those laws.

Author(s):
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Minimal WBC Reported Across Ohio



Western Bean Cutworm moth

Very few Western bean cutworm (WBC) numbers were reported in traps for the week of August 17 – 23. Overall, a total of 26 counties monitored 84 traps, resulting in 30 WBC adults (a statewide average of 0.37 moths per trap) (Figure 1). The low numbers we are observing are expected this time of the year as peak adult flight is now behind us. We would like to thank all the participating Extension Educators that monitored WBC flight this year.

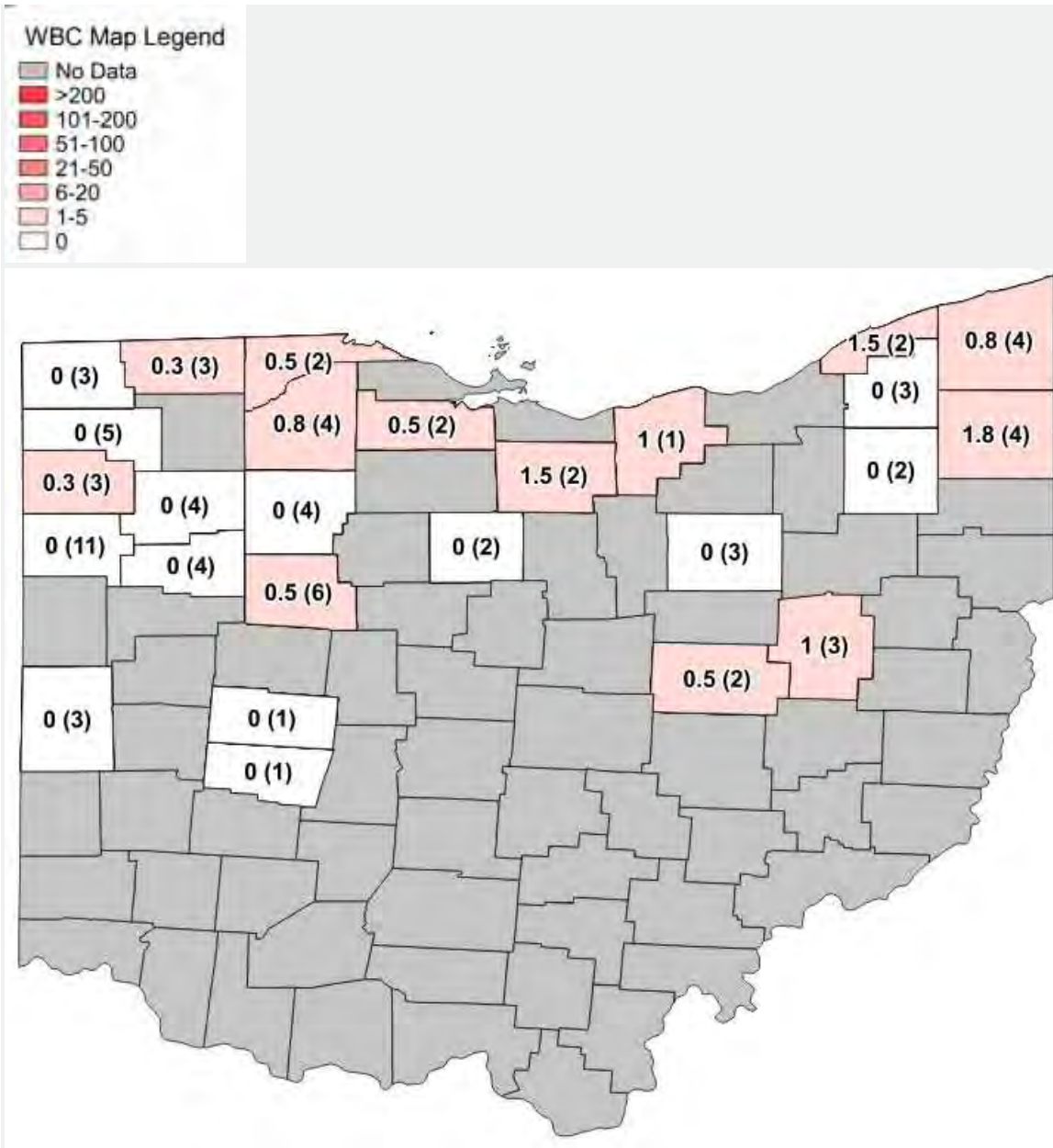


Figure 1. Average Western bean cutworm adult per trap followed by total number of traps in the county in parentheses for week ending August 23, 2020.

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Cover Crop Driving Tour



Cover Crops in Corn Stalks

Local farmers invite you out to their farms for a Drive-It-Yourself tour of fields with growing cover crops. These three farms are located in Northern Champaign and Logan Counties and are planted to different species of cover crops after wheat. The farmers will be on hand to answer questions and discuss how they adopted cover crops and make it work for their operations.

Cover crops provide many benefits to improving soil health and productivity. Getting started with cover crops can be daunting, especially with limited time and resources in the fall. Through the Cover Crop Champions program in Champaign and Logan Counties, these farmers are committed to helping others become successful. They are here to answer you questions and help you make it work on your individual

farms. For additional resources, videos and podcasts about using cover crops, please visit the link at the end of this article.

The tour is slated for September 17, from 5-8pm. Guests are invited to attend in any order at any time within the 3 hours. There is no cost to attend and we appreciate an RSVP. You can view details, the map and RSVP at <http://go.osu.edu/CCChampions>.

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Amanda Douridas

Other Articles

The Ag Law Harvest

By:Ellen Essman, Senior Research Associate Friday, August 21st, 2020

This edition of the Ag Law Harvest is heavily focused on recent environmental case law at the federal level. Read on to find out how habitats, migratory birds, environmental and administrative laws, and Trump's new Waters of the United States rule have fared in recent decisions.

What does “habitat” mean to you? Think about it carefully, because now is your chance to provide your input to the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS). Readers of the blog may remember we [reported](#) on a Supreme Court case dealing with critical habitat under the Endangered Species Act (ESA) a few years ago. The Supreme Court remanded the case back to the Fifth Circuit Court of Appeals. The Court of Appeals was charged with interpreting the word “habitat.” The Court of appeals then [punted](#) the interpretation to the U.S. District Court for the Eastern District of Louisiana, where the parties settled the case. Even with a settlement, the question of what “habitat” means remains. To remedy this omission, the FWS and NMFS published a [proposed rule](#) on August 5th to define “habitat” under the ESA. In this proposal, FWS and NMFS put forward two possible definitions of “habitat”:

- The physical places that individuals of a species depend upon to carry out one or more life processes. Habitat includes areas with existing attributes that have the capacity to support individuals of the species; or

- The physical places that individuals of a species use to carry out one or more life processes. Habitat includes areas where individuals of the species do not presently exist but have the capacity to support such individuals, only where the necessary attributes to support the species presently exist. The agencies are asking for public comment on the two definitions, and “on whether either definition is too broad or too narrow or is otherwise proper or improper, and on whether other formulations of a definition of ‘habitat’ would be preferable to either of the two definitions, including formulations that incorporate various aspects of these two definitions.” The comment period is open until September 4, 2020.

Will a lawsuit stop planned changes to NEPA? At the end of July, a number of environmental groups banded together and filed a 180-page [complaint](#) against the U.S. Council on Environmental Quality (CEQ). The complaint challenges the Council’s update to rules under the National Environmental Protection Act (NEPA). The groups’ basic argument is that the CEQ, under the direction of the Trump administration, published a new administrative rule under NEPA, but did not follow the Administrative Procedure Act (APA), which governs agency actions, when doing so. The lawsuit alleges: “[r]ather than make this drastic change deliberately and with the careful process the APA requires, CEQ cut every corner. The agency disregarded clear evidence from over 40 years of past implementation; ignored the reliance interests of the citizens, businesses, and industries that depend on full and complete NEPA analyses; and turned the mandatory public engagement process into a paper exercise, rather than the meaningful inquiry the law requires.” Basically, the groups argue that the administration ignored the APA all together. Why is this important? The environmental groups argue that the new rule essentially makes it possible for the federal government to push through projects that might have impacts on citizens and the environment, such as pipelines and roadways, much more quickly, and without much input from the public. You can read the final NEPA rule [here](#). We will have to wait and see whether the court agrees that the APA was violated in the creation of this rule.

Ruling on Migratory Bird Act clips the administration’s wings. Another lawsuit against the federal government was decided on August 11, 2020. The U.S. District Court for the Southern District of New York sided with a number of states as well as environmental groups, including the Natural Resources Defense Fund and the National Wildlife Federation. The Court found that the U.S. Department of the Interior (DOI) and FWS (at the direction of the administration) could not overturn 50 years of DOI interpretations of what “killings” and “takings” of birds meant under the Migratory Bird Treaty Act of 1918 with a single memo. Traditionally, the killing or taking any migratory bird, even accidentally or incidentally, has been interpreted as a violation of the Act. DOI’s memo sought to change this, only making the Act only apply to intentional hunting, killing, or taking. Essentially, if a business or person had a pond full of wastewater, and migratory birds swam in it, eventually killing the birds, it would only be “incidental” taking and not intentional under DOI’s logic in the memo. Ultimately, Judge Valerie Caproni channeled Atticus Finch by stating “It is not only a sin to kill a mockingbird, it is also a crime,” meaning that one memorandum could not overturn the fact that incidental and accidental takings of birds are still takings punishable by the Act.

Another WOTUS lawsuit bites the dust. There's always something going on with the Waters of the United States (WOTUS) rule. In April, the Trump administration published its final rule on WOTUS, which replaced the Obama administration's beleaguered rule from 2015. Almost immediately, the rule was challenged in court by those who thought it went too far in protecting waters, as well as those who felt it didn't go far enough. The Oregon Cattlemen's Association, which falls into the latter camp, filed suit against the EPA and the U.S. Army Corps of Engineers over the 2015 rule, later amending their complaint to address the 2020 rule. The Association claimed that both the old and new rules went too far, and that EPA did not have the authority to carry them out under the Clean Water Act. The judge dismissed the Association's case without prejudice for lack of standing, meaning that the issue may be litigated again, but the Oregon Cattlemen's Association could not show that its members are being negatively affected by the 2020 rule at this time.

Prepared by Jeff Stachler

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